REMARKS

Claims 1-39 and 41-47 were pending in the application. Claims 41 and 46 have been amended. Accordingly, claims 1-39 and 41-47 remain pending in the application.

35 U.S.C. § 102 Rejections

Claims 1-5, 7-9, 11-12, 14-21, 23-25, 27-38, 41-42, and 44-47 were rejected under 35 U.S.C. 102(a) as being anticipated by Solomon et al. (USPN 6151659). Applicant respectfully traverses this rejection.

Solomon teaches a distributed RAID storage system. More specifically, Solomon teaches,

> "In the RAID 5 context (hereinafter simply RAID), a longitudinal redundancy checking (LRC) is implemented to assure the integrity of data being written from a processor to a disk, and being read back from the disk on a host read request. To implement LRC, a portion of each disk sector is used to store a calculated LRC code for each data sector within the stripe. For the purposes of this specification and claims that follow, this <u>LRC code is defined to be the "validation stamp."</u>" (Solomon, Column 6 Lines 1-9) (Emphasis added)

> "At the start of the write transaction 300, the data to be written is transferred from the host 302 over the private communication link to the processing node. During a normal write mode 304, when all drives are functional, a protected write lock is acquired 306, and then <u>the old data and old parity data is read 308</u>. The location and extent of the impending write operation is then stored in NVRAM 310, and <u>the validation stamp for the new data is updated 312</u>. The **new data is written** 314 <u>and</u> the <u>old validation stamp of the **parity data** is compared 316 with the old validation stamp of the **old data**</u>. If the validations match, the old data, new data and old parity are XOR'd together 318, and the validation stamp for the new parity is updated to reflect the new data 320. The new parity is then written 322 and the lock is released 324. The operation is then removed from NVRAM 326 and a good status signal is returned 327 to indicate write success. If the validations did not match, the old data is read from all of the other data drives 328, and XOR'd 330 with the new data to be written. The validation stamp for the new parity is updated 320. The new parity is then written 322 and the lock is released 324. The operation is then removed from NVRAM 326 and a good status signal is returned 326 to the host to indicate write success." (Solomon, Column 6 Line 64 – Column

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7 Line 18) (Emphasis added)

Applicant respectfully submits that Solomon fails to teach or suggest "said storage controller is further configured to initialize a given stripe **in response to** receiving a write request to write a new data block at a particular location of said given stripe and **detecting a mismatch in block verification information associated with an existing data block at the particular location of said given stripe to be updated**" as recited in claim 1. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, the new data is written, and then the LRC (validation stamp) of the parity data is compared with the LRC of the old data, Solomon does not teach or suggest initializing "a given stripe in response to...detecting a mismatch in block verification information associated with an existing data block at the particular location of said given stripe to be updated" as recited in claim 1.

In accordance, independent claim 1 is believed to patentably distinguish over Solomon. Claims 2-5, 7-9, 11-12, and 14-16 depend on claim 1 and are therefore believed to patentably distinguish over Solomon for at least the reasons given above.

Likewise, independent claims 27 and 32 recite features similar to those highlighted above with regard to independent claim 1 and are therefore believed to patentably distinguish over Solomon for at least the reasons given above. Claims 28-31 and claims 33-39 depend on claim 27 and claim 32, respectively, and are therefore believed to patentably distinguish over Solomon for at least the same reasons.

Additionally, Applicant respectfully submits that Solomon fails to teach or suggest "said storage controller is further configured to initialize a given stripe **in response to** receiving a write request to write a new data block at a particular location of said given stripe and **detecting a mismatch in block verification information in each of at least two existing data blocks of said**

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given stripe, wherein **one of the two** existing data blocks is at the **particular location of said given stripe to be updated**" as recited in claim 17. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, the new data is written, and then the LRC of the parity data is compared with the LRC of the old data, Solomon does not teach or suggest **initializing "a given stripe in response to...detecting a mismatch in block verification information in each of at least two existing data blocks of said given stripe, wherein one of the two existing data blocks is at the particular location of said given stripe to be updated**" as recited in claim 17.

In accordance, independent claim 17 is believed to patentably distinguish over Solomon. Claims 18-21 and 23-25 depend on claim 17 and are therefore believed to patentably distinguish over Solomon for at least the same reasons.

Also, Applicant respectfully submits that Solomon fails to teach or suggest "in response to receiving the write request, reading an existing data block at the particular location of said given stripe to be updated; and initializing said given stripe in response to detecting a mismatch in block verification information associated with the existing data block" as recited in claim 47. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction both the old data and the old parity are read, Solomon does not teach or suggest that "in response to receiving the write request, reading an existing data block at the particular location of said given stripe to be updated" as recited in claim 47. Also, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, the new data is written, and then the LRC of the parity data is compared with the LRC of the old data, Solomon does not teach or suggest "initializing said given stripe in response to detecting a mismatch in block verification information associated with the existing data block" as

recited in claim 47. In accordance, independent claim 47 is believed to patentably distinguish over Solomon.

Furthermore, after considering the arguments presented below in the section corresponding to claims 7, 8, 23, 24, 31, 36, 37, 38, 41, 42, 45, and 46, Applicant respectfully requests the Examiner to show support for the Examiner's assertion that claims 7, 8, 23, 24, 31, 36, 37, 38, 41, 42, 45, and 46 are unpatentable over Solomon.

Applicant respectfully submits that Solomon fails to teach or suggest "wherein said storage controller is configured to **detect a mismatch** in said block verification information by comparing **a value** contained in a field of said particular data block for storing said error detection code to **a recomputed error detection code** computed from data within said particular data block read from one of said storage devices" as recited in claim 7. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, the new data is written, **and then the LRC of the parity data is compared with the LRC of the old data**, Solomon does not teach or suggest the features of claim 7 highlighted above. In accordance, claim 7 is believed to patentably distinguish over Solomon. Likewise, claims 23 and 38 recite features similar to those highlighted above with regard to claim 7 and are therefore believed to patentably distinguish over Solomon for at least the same reasons.

Also, Applicant respectfully submits that Solomon fails to teach or suggest "wherein said block verification information associated with a particular data block **includes** an address associated with said particular data block" as recited in claim 8. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. While Solomon teaches that "the location and extent of the impending write operation is then stored in NVRAM 310" (Column 7, Lines 2-3), Solomon does not teach or suggest the features of claim 8 highlighted above. In accordance, claim 8 is

believed to patentably distinguish over Solomon. Likewise, claims 24, 31, 36 and 37 recite features similar to those highlighted above with regard to claim 8 and are therefore believed to patentably distinguish over Solomon for at least the same reasons.

In addition, Applicant respectfully submits that Solomon fails to teach or suggest "wherein **in response** to receiving the write request, said storage controller is configured to read the existing data block and a corresponding block verification information, wherein said storage controller is also configured to **generate a recomputed block verification information** from data within the existing data block, wherein said storage controller is configured to **compare the corresponding block verification information to the recomputed block verification information** to determine whether a **mismatch** exists in the block verification information associated with the existing data block" as recited in claim 41. As noted above, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, the new data is written, **and** then the LRC of the **parity data** is compared with the LRC of the **old data**, Solomon does not teach or suggest the features of claim 41 highlighted above. In accordance, claim 41 is believed to patentably distinguish over Solomon.

Furthermore, Applicant respectfully submits that Solomon fails to teach or suggest "wherein said storage controller is configured to initialize said given stripe by generating the corresponding redundancy data block for said given stripe based on the new data block and a **known data pattern** to be written to said given stripe at memory locations corresponding to one or more remaining data blocks of said given stripe" as recited in claim 42. The Examiner contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction the old data and the old parity are read, the validation stamp of the new data is updated, **the new data is written**, and then the LRC of the parity data is compared with the LRC of the old data, Solomon does not teach or suggest the features of claim 42 highlighted above. In accordance, claim 42 is believed to patentably distinguish over Solomon.

Additionally, Applicant respectfully submits that Solomon fails to teach or suggest "wherein said storage controller is configured to <u>initialize one or more stripes</u> in said data storage subsystem **depending upon whether write requests are received** that correspond to the one or more stripes **and depending upon whether a mismatch is detected** in the block verification information associated with each of the one or more stripes" as recited in claim 45. The Examiner again contends that Column 6 Line 64 – Column 7 Line 18 of Solomon teaches this feature. Applicant strongly disagrees with the Examiner's assertion. As noted above, while Solomon teaches that during a write transaction <u>the old data and the old parity are read</u>, the validation stamp of the new data is updated, <u>the new data is written,</u> **and then the LRC of the parity data** is compared with the LRC of the **old data**, Solomon does not teach or suggest the features of claim 45 highlighted above. In accordance, claim 45 is believed to patentably distinguish over Solomon.

Likewise, Applicant respectfully submits that Solomon fails to teach or suggest "wherein said storage controller is configured to <u>initialize a subset of said stripes</u> in said data storage subsystem <u>in response</u> to receiving a write request <u>to write a new data block in **each** of the subset of said stripes **and** in response to detecting a mismatch</u> in block verification information associated with **each of the subset of said stripes**, and <u>subsequent</u> to initializing the subset of said stripes, <u>initializing one or more remaining stripes</u> in said data storage subsystem <u>in response</u> to receiving a write request to write a new data block in **each of the one or more remaining stripes** **and** <u>in response to detecting a mismatch</u> in block verification information associated with **each of the one or more remaining stripes**" as recited in claim 46. As noted above, while Solomon teaches that during a write transaction <u>the old data and the old parity are read</u>, the validation stamp of the new data is updated, <u>the new data is written,</u> **and then the LRC of the parity data** is <u>compared with the LRC of the **old data**</u>, Solomon does not teach or suggest the features of claim 46 highlighted above. In accordance, claim 46 is believed to patentably distinguish over Solomon.

Applicant respectfully requests the Examiner to show support for the Examiner's

argument that claims 7, 8, 23, 24, 31, 36, 37, 38, 41, 42, 45, and 46 are unpatentable over Solomon.

35 U.S.C. § 103 Rejections

Claims 10, 26, and 39 were rejected under 35 U.S.C. §103(a) as being unpatentable over Solomon in view of IBM. Applicant respectfully traverses the rejection. Claim 10, claim 26, and claim 39 are dependent upon claim 1, claim 17, and claim 32, respectively, and are therefore believed to patentably distinguish over cited references for at least the reasons given in the above paragraphs discussing claims 1, 17, and 32.

Claims 6, 13, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Solomon in view of Archibald, Jr. et al. (US Publication Number 20020169995). Applicant respectfully traverses the rejection. Claims 6 and 13 and claim 22 are dependent upon claim 1 and claim 17, respectively, and are therefore believed to patentably distinguish over cited references for at least the reasons given in the above paragraphs discussing claims 1 and 17.

CONCLUSION

In light of the foregoing amendments and remarks, Applicant submits that all pending claims are now in condition for allowance, and an early notice to that effect is earnestly solicited. If a phone interview would speed allowance of any pending claims, such is requested at the Examiner's convenience.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-77800/BNK.

Respectfully submitted,

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